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# Feathers in the Nest: Establishing a Supportive Environment for Women Researchers

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## Abstract

*This paper discusses research examining the attitudes and behaviours of researching women in academia and considers the effect of these factors on successful researching outcomes. The results of this exploratory research highlight in particular, a number of interesting environmental influencers which contribute to enhancing successful work outcomes for academic women researchers. Specifically, personal factors such as, marital status, partner support, age, cultural background and level of organisation (in life) coupled with, research defined factors such as incentive for conducting the research and the existence of research partnerships and/or groups are identified as significant performance influencers. These dimensions appear to facilitate the level of research productivity for women academics based on key performance indicators such as journal/conference paper submissions and successful research funding applications. The potential benefits of this exploratory research are that any correlation between specific self-supporting attitudes or behaviours of successful women academics and effective research outcomes could provide important clues to both emerging and continuing researchers for career development and promotion.*

## Introduction

Much of the current research on women in research focuses upon highlighting or measuring barriers to academic success. Past explanations for the lower productivity of female researchers, compared with their male counterparts, include factors such as the multiple roles adopted by women (mother, partner, friend, care-giver, colleague, academic), gender stereotyping, and what has been regarded as “toxic atmospheres”

for work which are exacerbated by gender biasing issues such as inequality in pay rates, promotional opportunities, non-flexible workloads (Stark-Adamec, Robinson, & Loutzenhiser 1993; Wilson 2001, 2004; Fodor 2005). Further research has investigated some of the sacrifices made by women academics, for example, forgoing or postponing having children in order to sustain a successful academic career (Williams 2001; Wilson 2003). In response to this body of literature, this paper adopted a counter perspective on the climate for women academics by highlighting the positive influences for women in these roles. Specifically, this research seeks to explore the nature of the relationship between research success (measured through research publications and successful research grant applications) and specific techniques to achieve this success. The answers to these questions could provide valuable information to women academics at all levels and foster enhanced performance for women employed within academia.

## **Literature Review**

### **Gender inequalities in academia**

Statistics released by the National Centre for Social and Economic Modelling (NATSEM) within Australia have suggested that the percentage of women in the workforce has risen significantly since the mid 1980's (Kelly, Bolton, & Harding, 2005). Specifically, workforce participation rates for women have risen by 11 per cent while the participation rate for men has seen a decline by 3.5 per cent (Kelly et al., 2005). This rapid social change has been attributed to higher costs of living, higher divorce rates and the acceptance of the married career women. Kelly et al., (2005) also highlighted that approximately 43 per cent of all new jobs created between 1990 and 2003 went to women with degrees. While these statistics are viewed as a positive move towards equality in the workforce, currently, for many women the workforce is reflecting a different reality (Wilson, 2003, 2004). It is acknowledged that some areas of employment will continue to sustain gender bias due to the nature of the role, for example roles which involve extensive physical exertion such as mining and construction are predominately filled by males, while roles such as nursing and early childhood teaching are predominantly filled by females. Other roles are recognised as encapsulating role competencies for both males and females, and academia is one such profession. Nevertheless, gender inequalities are noted to still exist in this profession despite an increasing number of women seeking employment in academic roles.

Figures reported by White (2003) appear to support the notion that there are equal numbers of men and women completing PhD programs yet it appears that the current university focus on recruiting young scholars may indeed be inadvertently excluding many female scholars from being employed as these women are usually at an age

when family responsibilities tend to clash with professional commitments – especially as women bear most of the responsibilities associated with caring for children and ageing family members (Wilson 2004; Fodor 2005). Starting a family still remains a burden on women's careers. The catalyst for most young female academics is that, on average, women receive their PhD at the age of 34 and this is usually the time when they are contemplating starting to have children as well as committing more firmly to a relationship with their partner (Acker & Armenti, 2004). Forester raises a significant point in the decision making process young women face in starting a family and the associated impact this may have on their career progression, "even if women academics postpone having children until after they have completed a PhD, the arrival of young children often coincides with an age when they are still expected to make an impact in their chosen fields through high-quality research and a regular output of publications" (2001, p. 30). Findings from his research indicated that a third of respondents had made some form of career sacrifice for their family and nearly half made career adjustments for the sake of their relationships (Forster, 2001). Wilson offers further support for the existence of inconsistencies in the roles adopted by women academics by succinctly reporting, "women and children in academia are subject to the contradictory discourses of 'good mother' and 'successful academic'" (2005, p. 236).

Beyond the initial challenges women face when first considering starting a family further research has demonstrated the ongoing challenges the career-family balance creates for working women. Within academia, Wilson argues that this career-family struggle continues for mid-career women academics as the time dedicated to raising families can result in "career stalls" (2001, p. 235). These in turn can lead women academics to gain less recognition and prestige than their male counterparts. Although academia provides a degree of flexibility for researchers, (for example, research work can be conducted at home) many women still find the balance between child rearing duties and the time and focus required for academic research and writing to be at times, unmanageable (Wilson, 2001). With time divided between teaching, contact hours, lecture preparation and marking, research and home commitments the pressure to obtain tenure and job promotion can be intense (Stark-Adamec et al., 1993). Adding to this body of literature is a study conducted by Mason & Goulden (2004) who investigated the prevalence of marriage and children in women academics and identified that overall, male academics were more likely to be married and have children than female academics. Furthermore, male academics who began their tenure without children were 70 per cent more likely to become a parent than female academics (Mason & Goulden, 2004).

The breaks in research continuity experienced by those women academics serving a dual role may contribute to the imbalances seen in gender equity in higher level

academic positions. For example, research from the USA has indicated that over 70 per cent of professors employed in US universities in 2001-02 were male while, nearly 60 per cent of lecturers at the entry level (associate professor) were male (Higher Education Research Institute in Wilson, 2004). Furthermore, a study conducted by White (2003) identified that in Australia in 2000 approximately 16 per cent of women academics held positions of associate professor or professor, while only 29 per cent held senior lecturer positions. The under-representation of women in academic positions in universities is of serious concern and this imbalance serves to suggest a measure of disadvantage would be experienced by women attempting to progress an academic career (Allport, 2001). In summary, the body of research surrounding the progression of women academics appears to suggest that women advance more slowly up the academic ranks than men, are paid less than their male counterparts and experience higher levels of job dissatisfaction (Forster, 2001; Wilson, 2004).

In response to the acknowledgement of the challenges facing women academics a plethora of studies have been conducted which have sought to define structural barriers to gender equality in academia. These primarily include: poor recruitment and selection policies, a lack of suitable mentors or role models, insufficient career development and promotion policies, inadequate appraisal systems and male dominance in institutional power (see for example, Jackson, 1990; Aaker, 1992; Park, 1992; Heward, 1994; Forster 2001). These entry and promotion barriers in academia can be quite damaging to a woman's academic career, and coupled with the previous research findings regarding the number of women academics and the imbalances in the work-family roles, it paints a somewhat ominous picture for women contemplating academic careers. Nevertheless, it must still be acknowledged that there are a significant number of women academics who can be identified as attaining successful career status; hence it is the researchers' opinion that fellow women researchers can draw from the experiences of such successful women academics. Following from this deductive reasoning, it is logical to suggest that gaining insight into the types of behaviours, attitudes and situational environments adopted, successful women academics may provide valuable insight into ways in which other women academics can continue to grow in this career path.

Interest in identifying both the positive and effective lived experiences of women academics resonates within the growing body of practitioner based literature which examines the role of women-only developed and implemented training and development programs for women in academia. A study by Willis & Daisley (1997) asked women researchers what advantages women gained from being involved in women-only academic training and development programs, the top three of these were described in terms of learning from other women's examples, exploring issues especially relevant to women and hearing a woman's point of view. Additional research

conducted by Monks & Barker (1999) listed “interested in self development” (80 per cent) and they wanted to “meet and exchange views with others” (71 per cent) as the top two responses as to why women opted to attend specific women-only academic training and development courses.

These findings highlight the significant role women academics can play for each other in terms of providing feedback, support and encouragement in academic career development. As such, this exploratory research sought to examine the behaviours, attitudes and environmental influencers which women researchers identified as significant in contributing to effective research outputs. Specifically, the study aimed to glean an insight into the practices of women which foster and support academic success.

The potential benefits of this exploratory research are that it identifies and disseminates information on the practices, behaviours and environments of effective women researchers thus providing useful insights for emerging female academics. Further, any correlation between adopted behaviours or environmental influencers and effective research outcomes (e.g., successful funding applications) could provide important clues to both emerging and continuing researchers for career advancement and promotion.

### **Defining an effective researcher**

Given that this study sought to identify influencing factors for effective women researchers it was necessary to clearly define an effective researcher. The role of the academic within Australian universities has shifted in recent times with an increasing emphasis on the publication of research results. Additionally, the pressure is on academics to not only publish, but to apply for external and internal grant funding in order to financially secure future research. As a result of government funding initiatives for universities, academic career advancement is more often linked with research output than teaching excellence. The result of these government initiatives is that individual performance indicators are appraised and valued in line with university performance appraisals rather than in the direct personal interest of individual development requirements (Wilson, 2005). Thus, it has been suggested that research is regarded as a means by which to separate the “men from the boys...and the women” (McCormack & Pamphilon, 2000, p. 192).

In the interest of this study, the researchers chose two key performance indicators currently identified across universities under the new initiatives namely, research publications and research funding. Furthermore, given that academic performance reviews (in the main) are conducted annually these measurement variables were recorded as an evaluation of research outputs over a period of twelve months. That is, an effective researcher was defined on the basis of journal articles and/or conference papers successfully submitted in the past twelve months and/or who had successfully

attained research funding (either within their university or from an external source) in the past twelve months. Figure 1 outlines the conceptual framework identified for the research.

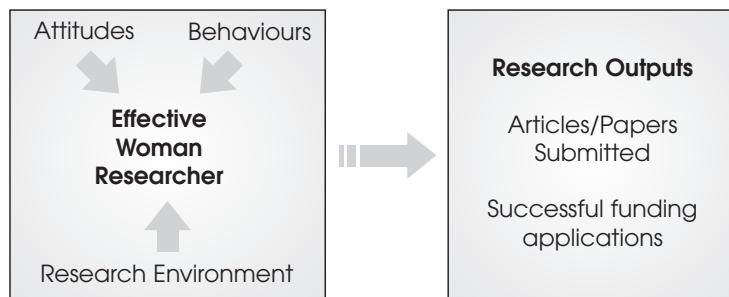


Figure 1: Conceptual Framework

## Methodology

### Research design

The study was exploratory by nature and therefore the sample frame included a probability sample from a closed population, namely, women researchers employed at and working with a Queensland university. The total sample included the university's five regional campuses.

The research design adopted a quantitative methodology through the administration of an online survey. Online surveys were selected as optimal method of data collection as this survey technique was conducive to both the research timeframe and sample population. Specifically, online surveys provided the following advantages: significant reduction in the time and unit cost of survey administration in comparison to traditional data collection methods (i.e., mail surveys); ready access to individuals in sample population, regardless of geographic location; control over the sample (enables sample selection to occur); and, transference of the data directly to the data analysis software thus limiting data entry errors (Kehoe, Pitkow, & Rogers 1998; Hmielewski, 2000; Ilieva, Baron, & Healy, 2002; Zimitat & Crebert, 2002). Online surveying was selected as the optimal survey method for this study as the research was being conducted within an organisation where the target population could be accessed by electronic mail and the survey time was a research constraint (Schonlau, Fricker, & Elliott, 2002).

Administration of the survey to the research participants was facilitated via an invitation email (Ilieva et al., 2002). The email contained a URL link to the confidential online survey which was password privilege accessible. Access to the sample was ascertained via three main sources:

- Women in Research (WiR) association's member database (WiR is an organisation supporting the role of women in academia). This listing consisted of 160 e-mail addresses;
- The research-students e-mail list complied by the Office of Research comprising 113 female researchers; and,
- Via email correspondence with Associate Dean of Research (ADR) Secretaries, for distribution to women researchers within each of the university's Faculties.

While this sampling approach resulted in some instances of over-lap (some women receiving more than one email inviting them to participate in the study) the authors estimate, conservatively, a minimum of 200 different women in research were invited to participate in the study.

The survey consisted of both fixed limited response and open ended questions which sought to provide an insight into the internal and external influencers on women researchers. The questions were presented across eight sections, demographic; employment and study; research; research effectiveness; research output; research rejection; research career and final thoughts. This research sought to minimise the four inherent sources of error identified by Groves (1989):

- Coverage errors – these arise when the sample population is not considered representative due to the likelihood that some members of the population sample are more likely to be sampled than others (Zimitat & Crebert, 2002). The coverage errors associated with this research were limited as all members of the population had access to email and internet. Furthermore, all respondents were provided with an identifying PIN access which allowed the researchers to identify any multiple responses;
- Sampling errors – these arise when only a portion of the population is sampled. In this instance sampling error was significantly reduced as all women employed at the university were invited to respond via email;
- Measurement error – results from poor questionnaire or screen design as well as browser problems. To reduce the degree of measurement error, the online survey was pilot tested on a small (approximately twelve) sample of the target population (women academics). Through this process valuable feedback was provided on design and layout concerns and it provided an opportunity for the interface and database management system to be tested; and,

- Non-response errors – these occur when a participants' responses differ from those of non-respondents (Zimitat & Crebert, 2002). By way of enhancing the possible response rate from the target population, a follow-up email was sent to the invited population encouraging them to complete the survey.

## Results

A total of 73 responses to the online survey were received, of which one was identified as a double response and subsequently deleted. Hence, 72 responses were included in the analysis of results, making the sample response rate 36 per cent. This rate is well within the accepted range of 7 per cent to 44 per cent for web based research (Schonlau et al., 2002).

Prior to analysis, data were coded, transformed and checked for coding or data entry errors (which were minimised via the online survey approach). Preliminary descriptive statistics were utilised to identify the sample in terms of variables such as, age, marital status, employment status, employment position and years of research. Subject descriptors identified that the majority of respondents were between the ages of 41 and 45 (24.3 per cent); married (44.3 per cent); employed full-time (80.9 per cent); and had been involved in research between 1 to 5 years (38 per cent).

Further descriptive analysis of the preliminary measures of researcher effectiveness, either research paper submissions (conference papers or journal articles) or successful grant funding in the previous twelve months, identified that 58.3 per cent of respondents had submitted a conference paper in the past twelve months and 31.9 per cent of respondents had submitted a journal article in the last twelve months. In addition, 29.6 per cent of respondents stated they had successfully applied for research funding (either internally through the university or through an external funding source). For the purposes of the ensuing analysis a further delineation was made with regard to successful research funding. This research output variable was assessed on the basis of successful funding applications which were submitted individually or in collaboration with research colleagues.

### **Identifying significant research influencers**

A number of behavioural, attitudinal and environmental (work and family orientated) variables were included in the survey. However, not all of these variables were identified as having a significant relationship with the research effectiveness constructs. Table 1 outlines the variables included in the final analysis against each of the previously identified effective research outputs.

Environment	Independent Variable	Dependent Variables
Family environment	Marital status	Conference paper submitted
	State of current relationship	
	Industry partner is employed within	
	Partner's involvement in research	
	Degree of support by partner	
Work environment	Degree to which you work with others	Journal paper submitted
	Main reason for conducting research	
	Degree of organisation in aspects of life (research / home life / social life / paid work)	
	Use of a research mentor	Funding application submitted alone
	Work space used	
	Career path mapped	
	Career path perceptions – Have you been helped or hindered by: age, gender, qualifications, cultural background, physical appearance	Funding application submitted with others

**Table 1: Overview of Variables included in Analysis**

In order to explore the significance of relationships between independent and dependent variables non-parametric testing was conducted. Non-parametric testing is utilised when exploring relationships between two categorical variables of two categories or more each (Pallant, 2005). In order to determine the relatedness of women researcher behaviours, attitudes and situational influencers to effective research outputs, a series of chi-square tests for independence were conducted. Table 2 and Table 3 provide a summary of the significant relationships identified between the independent and dependent variables which are outlined in the following discussion.

### **Influencers on conference and journal paper submissions**

The proportion of conference papers submitted by respondents were identified as being significantly influenced by the researcher's reason for undertaking the research. While participants responded most frequently with, "for personal interest" (20.3 per cent), "my degree requires research" (21.7 per cent) and "committed to lifelong learning" (21.7 per cent) in response to reasons for conducting research, further analysis highlighted variations to these reasons between those women who had and had not submitted a conference paper in the past twelve months. Women who had submitted a conference paper in the past twelve months identified extrinsic elements such as "my job requires research" (90 per cent) and "my degree requires research" (60 per cent) as the most significant reasons for conducting research.

The proportion of conference papers submitted were also significantly influenced by participants' perceptions of whether they felt their age helped or hindered their research/ and/or academic career. The results indicated that approximately 68 per cent of women who had submitted a conference paper perceived that their age helped their progress, while 62.5 per cent of women who stated they had not submitted a conference paper perceived that their age had hindered their career path.

In relation to journal paper submissions, surprisingly only one influencing variable was identified as significant. A woman's marital status was shown to significantly affect whether a journal paper had been submitted in the past twelve months. A significantly higher proportion of women who were single, dating or widowed (90 per cent, 100 per cent and 100 per cent respectively) submitted a journal paper. Married women (40.6 per cent), those who were divorced (50 per cent) and those in a de-facto relationship (50 per cent) were identified as submitting a journal paper in the past twelve months. These results suggest that the dual role assumed by some women (career academics and mother/wife) significantly impacts the time and energy women may have available to dedicate to preparing and submitting journal articles which are widely recognised within academia as labour intensive research endeavours.

Research effectiveness variables	Significant influencers	df	Asymp. Sig (2-tailed)
Conference paper submitted	Reason for conducting research	5	.05
	Has age helped or hindered your research / academic career	1	.04
Journal paper submitted	Marital status	5	.05

**Table 2: Significant Research Effectiveness Influencers on Paper Outputs**

### **Influencers on funding application submissions**

An analysis of the influencing variables on funding application submissions identified six significant relationships of interest. These relationships were further delineated by assessing funding application submissions made alone and those prepared and submitted while working with fellow researchers. For those researchers who worked alone on funding application submissions marital status was once again identified as an influencing variable. The statistics indicated that proportionately more women who were single, dating, married and in de-facto relationships (90 per cent, 100 per cent, 90.6 per cent and 66.7 per cent respectively) had not submitted a funding grant than those who did. Women who were divorced (51 per cent) or widowed (100 per cent) had submitted a funding application in the previous 12 month period. These results further support the implications of the dual role obligations assumed by women academics, as outlined in the previous results section.

Organisation is also a significant contributor for women submitting funding applications. Women researchers identified that they were “always” more organised in relation to both paid work (84.1 per cent) and social life (41.1 per cent) than “never”. Furthermore, on average women who did not submit funding applications alone were more likely to be highly organised in regards to their social lives (93.8 per cent) and their paid work (87.9 per cent). No statistically significant relationships were identified for home life and research – and the percentage of women researchers submitting for funding alone.

A number of statistically significant relationships were found for those women who had submitted funding applications while working with others. The data analysis revealed that a women researcher’s partner’s level of involvement in research was significantly linked to the number of funding applications submitted. Predominately more partners were unlikely to conduct research (73.5 per cent), however higher proportions of women who submitted funding applications with others had partners who were “currently conducting research” (60 per cent) or were “planning to conduct research in the future” (66.7 per cent). Potentially, the dual roles of home and academia comprise more overlaps when a partner is involved in both home and academic duties as well. Perhaps, the level of support is greater or both partners appreciate the time required for writing and submitting funding applications.

Significant relationships were also established between the research partnerships established by women in research and the submission of successful funding when working with others. Perhaps not surprisingly, these results indicated that women who tended to work alone had not applied for funding with others (55.1 per cent), while all of the women (100 per cent) who indicated that they predominately worked with at least one other person, had submitted a funding application with others.

Research effectiveness variables	Significant influencers	df	Asymp. Sig (2-tailed)
Funding application submitted alone	Marital status	5	.05
	Organised in social life	2	.05
	Organised in paid work	2	.05
Funding application submission with others	Partner’s involvement in research	3	.03
	Has your cultural background helped or hindered your research / academic career	1	.03
	Working partnerships	5	.04

**Table 3: Significant Research Effectiveness Influencers on Funding Submissions**

Independent Variables	Dependent Variables			
	Conference paper submitted	Journal paper submitted	Funding application submitted alone	Funding application submission with others
<b>Reason for conducting research</b>	<b>37 100%</b>			
For personal interest	5 13.5%			
My degree requires research	9 24.3%			
Committed to lifelong learning	6 16.2%			
My job requires research	12 32.4%			
For career advancement	5 13.5%			
<b>Age</b>	<b>22 100%</b>			
Age helps progress	15 68.2%			
Age hinders progress	7 31.8%			
<b>Marital status</b>		<b>23 100%</b>	<b>11 100%</b>	
Single		1 4.3%	1 9.1%	
Dating		0 0%	0 0%	
De-facto relationship		6 26.1%	4 36.4%	
Married		13 56.5%	3 27.3%	
Divorced		3 13%	3 27.3%	
Widowed		0 0%	0 0%	
<b>Organised in social life</b>			<b>10 100%</b>	
Always			2 20%	
Sometimes			8 80%	
Rarely			0 0%	
<b>Organised in paid work</b>			<b>11 100%</b>	
Always			7 63.6%	
Sometimes			3 27.3%	
Rarely			1 9.1%	
<b>Partner's involvement in research</b>				<b>11 100%</b>
Has previously conducted research				1 9.1%
Is currently conducting research				3 27.3%
Planning to conduct research				2 18.2%
Unlikely to conduct research				5 45.5%
<b>Cultural background</b>				<b>3 100%</b>
Helps				1 33.3%
Hinders				2 66.6%
<b>Workshop partners</b>				<b>13 100%</b>
Working alone				3 15.4%
Working with one other person				4 30.8%
Working with two or more				6 46.2%

NB: Figures based on cross-tabulations recorded as percentages of respondents who identified themselves as successful women researchers under the specified success criteria

**Table 4: Overview of Significant Research Effectiveness Influencers – Cross-Tabulations Results for Successful Researcher Criteria**

Finally, significant differences were found between those women who perceived their cultural background to be a factor that either helps or hinders them in their funding application submissions with others. Specifically, 94.7 per cent of women who had not submitted a funding application with others believed that their cultural background had helped their career, while 60 per cent of women who had submitted a funding application with others believed that their cultural background had in fact hindered their career.

Table 4 provides an overview of all of the significantly identified research effectiveness influencers on the key research output variables (papers submitted and successful funding applications) which have been identified as a result of the analysis.

## **Discussion**

This exploratory study has identified common attitudes, behaviours and influencers for research effectiveness of women conducting research at a university level. In total, seven influencing factors namely: a women researchers' reason for conducting research, their marital status, their partner's level of involvement in research, levels of personal organisation by women researchers, their working partnerships and their perceptions of aspects such as their age and cultural background have been significantly identified as impacting upon current measures of academic effectiveness.

Thus, both family and work-orientated influencers were identified as impacting upon the effectiveness of women in academic roles. Findings in relation to women researcher relationships identify that marital status continues to influence work performance outcomes for women in academia. Specifically, these preliminary results indicate that women researchers are more productive in relation to academic performance tasks which require a high level of time, concentration and consideration (i.e. writing of journal papers and the submission of funding applications as a sole researcher) when they are not in the confines of a relationship which involves living with a partner. For those women who are in a relationship involving living with a partner, those that are involved with someone who has an understanding of the process of research (perhaps by being a researcher themselves) ,are more likely to be a successful researcher, in terms of publications and funding. The results of this study match previous research conducted by Forster (2001) which identified that three-quarters of the partners of women researchers were supportive of their partners' careers which can be attributed to effective climates fostering academic success. The findings further highlight that the perceptions that women researchers have in regards to themselves also influence their productiveness in the academic workplace. These findings, specifically in regards to age and cultural backgrounds, indicate that both positive and negative perceptions in regards to personal characteristics can have an effect on a woman's levels of productiveness, and hence success, within academia.

It is acknowledged that the variables chosen for inclusion in the study offered a somewhat myopic view of the diverse range of variables which could be identified as influencers on an academic woman's work performance outcomes (for example, other aspects such as number and age of children could be included). Nevertheless, perhaps what needs to be recognised within this discourse is that socialisation continues to play an important role in shaping gender experiences in the work environment. As Wilson (2005) states, "while qualities like empathy, listening, nurturing and coaching might be explicitly associated with women, these qualities are not reflected in rewards and promotions" (p. 236). Undoubtedly, much discussion could ensue from acknowledging those relationships between the variables presented in Table 1 and those which were not presented in Table 1 and which were not recognised as significant. Additionally, previous analysis conducted by the researchers included additional dependent variable measures (such as, number of papers and funding applications submitted and the type of funding applied for) and explored several significant relationships between these factors and the role of mentoring for women academics (Dobele, Hartley, & Benton, 2006). Hence the expansion of what defines a research effectiveness outcome variable in future studies may provide a more realistic and encompassing view of the achievements of women academics and thereby assist in shifting the focus from what Forster has identified in modern day university structures as "gender-blindness" (2001, p. 36). Consequently, it is proposed that future research further quantify these research output variables so as to tighten the effective researcher research index and to extend the literature review on this topic. For example, several additional components of the index could be incorporated, including a longitudinal approach and taking an average research output over several years rather than the previous twelve months, or considering the type of journals published in (ranked tiers). A ranked matrix grid showing differences between, for example, international and domestic conferences, peer reviewed journal papers and total amount of research grants could be considered for future measurements.

In summary, this paper sought to expand the discourse on the influencers, attitudes and behaviours of women academics which support and nurture a highly productive research career. The study identified common effective attitudes and behaviours of successful women academics. Thus, the main outcome of this research was the identification of effective research strategies, environments and networks employed by successful women researchers. These factors are presented as valuable guidelines, or feathers to make comfortable the nests of all present and future women in research. Most importantly, this study is designed to encourage and support all women researchers, from those commencing their postgraduate research to those who are involved in academic research at all academic levels in pursuit of academic success. Put eloquently by Williams (2001), "When brilliant women allow their careers to be derailed, everybody loses: the women, the scholars who might have been their colleagues, and society at large" (n.p.).

## Acknowledgement

The authors wish to acknowledge the support and contribution of the members of the Women in Research (WiR) committee and its valued members at Central Queensland University.

## References

Aaker, S. (1992). New perspectives on an old problem: The position of women in British higher education. *Higher Education*, 24, 57-75.

Acker, S., & Armenti, C. (2004). Sleepless in academia. *Gender and Education*, 16(1), 3-24.

Allport, C. (2001, August). Transcript from speech to WA Women's Network. Retrieved April 3, 2006 from [http://www.nteu.org.au/getinvolved/equal/women/archive/1557?file=WA\\_Womens\\_Conference\\_Speech\\_August\\_2001.doc](http://www.nteu.org.au/getinvolved/equal/women/archive/1557?file=WA_Womens_Conference_Speech_August_2001.doc)

Dobele, A., Hartley, N., & Benton, I. (2006, December). *Mentoring: Does support equal success?* Paper presented at ANZAM 2006 Conference, Central Queensland University, Rockhampton, QLD.

Fodor, K. (2005). Women on the rise: The number of women faculty is growing, thanks in part to institutional efforts to fight discrimination and help with family demand. *The Scientist*, 19(21), S14.

Forster, N. (2001). A case study of women academics' views on equal opportunities, career prospects and work-family conflicts in a UK university. *Career Development International*, 6(1), 28-38.

Groves, R. M. (1989). *Survey errors and survey costs*. New York:Wiley.

Heward, C. (1994). Academic snakes and merit ladders: Reconceptualising the glass ceiling. *Gender and Education*, 6(3), 249-262.

Hmielecki, K. (2000). Barriers to online evaluation: Surveying the nation's top 200 most wired colleges. *IDEA Laboratory*(online). New York: Rensselaer Polytechnic Institute.

Ilieva, J., Baron, S., & Healy, N.M. (2002). Online surveys in marketing research: Pros and cons. *International Journal of Market Research*, 44, July.

Jackson, D. (1990). Women working in higher education: A review of the position of women working in higher education. *Higher Education Quarterly*, 44(4), 297-324.

Kehoe, C., Pitkow, J., & Rogers, J. (1998, July). GVU's ninth WWW user survey report. Retrieved July 8, 2006, from, [http://www.gvu.gatech.edu/user\\_surveys/survey-1998-04/](http://www.gvu.gatech.edu/user_surveys/survey-1998-04/).

Kelly, S., Bolton, T., & Harding, A. (2005). May the labour force be with you. *AMP NATSEM Income and Wealth Report Issue 12*. Canberra: National Centre For Social and Economic Modelling.

Mason, A. & Goulden, M. (2004). Marriage and baby blues: Redefining gender equity in the academy. *Annals of the American Academy of Political and Social Science*, 596, 86-103.

McCormack, C., & Pamphilon, B. (2000). Paths, phases, juggling and balancing acts: How women academics understand their personal experience of postgraduate study. In M.M.Kiley (Ed.), *Quality in postgraduate research: Making ends meet*. Adelaide, SA: University of Adelaide.

Monks, K., & Barker, P. (1999). Management development for women academics and administrators. *The Journal of Management Development*, 18(6), 531-542.

Pallant, J. (2005). *SPSS Survival Manual*. Sydney: Allen and Unwin.

Park, A. (1992). Women, men, and the academic hierarchy: Exploring the relationship between rank and sex. *Oxford Review of Education*, 18(3), 227-239.

Schonlau, M., Fricker, R., & Elliott, M. (2002). *Conducting research surveys via E-mail and the web*. USA: Rand.

Stark-Adamec, C., Robinson, T. P., & Loutzenhiser, L. (1993). Faculty women's allocations of time. *Perceptual and Motor Skills*, 77, 689-690.

White, K. (2003). Women and leadership in higher education in Australia. *Tertiary Education and Management*, 9(1), 45-60.

Williams, W. (2001). Women in adademe, and the men who derail them. *The Chronicle of Higher Education*, 47(45), n.p.

Willis, L., & Daisley, J. (1997). Women's reactions to women-only training. *Women in Management Review*, 12(2), 56-60.

Wilson, F. (2005). Caught between difference and similarity: The case of women academics. *Women in Management Review*, 20(4), 234-248.

Wilson, R. (2001). For women with tenure and families, moving up the ranks is challenging. *The Chronicle of Higher Education*, 48(11), n.p.

Wilson, R. (2003). How babies alter careers for academics. *The Chronicle of Higher Education*, 50(15), n.p.

Wilson, R. (2004). Where the elite teach, it's still a man's world. *The Chronicle of Higher Education*, 51(15), n.p.

Zimitat, C., & Crebert, G. (2002). *Conducting online research and evaluation*. Adelaide: HERDSA.